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09/445,033	01/18/2000	MARK SIEVERT LARSEN	CU-2048TJK	9384

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EXAMINER

PARTON, KEVIN S

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 02/19/2004

19

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/445,033

Applicant(s)

LARSEN ET AL.

Examiner

Kevin Parton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 and 30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-6, 8, 13-17, 22, 23, 25, and 30 are rejected under 35 U.S.C. 102(a) as being anticipated by Dube et al. (1997).

4. Regarding claims 1 and 30, Dube et al. teach a wireless communication network comprising a plurality of stations each able to transmit and receive data so that the network can transmit data from an originating station to a destination station via at least one opportunistically selected intermediate station, the method comprising:

- a. Defining at least one calling channel distinct from at least one data channel, on which stations can transmit probe signals to other stations to which any station can respond, receive probe signals from other stations, and monitor probe signals transmitted by other stations (page 38, column 1, paragraph 1-3).

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- b. Selecting, at intervals, at each station and according to first predetermined criteria, a calling channel for the transmission of probe signals to other stations (page 38, column 1, paragraph 1-3).
- c. Transmitting broadcast probe signals from each station at intervals on the selected calling channel, other stations which receive the broadcast probe signals from a given station responding directly, or indirectly via at least one intermediate station, to thereby indicate to the given station their availability as destination or intermediate stations (page 38, column 1, paragraph 1-3, page 38, column 2, paragraph 4).
- d. Evaluating, at the given station, the direct or indirect responses of other stations to the broadcast probe signals according to second predetermined criteria, in order to identify other stations with which the given station can communicate optimally (page 38, column 1, paragraph 1-3).

5. Regarding claim 2, Dube et al. teach all the limitations as applied to claim 1. They further teach means wherein the other stations receiving the probe signals from the given station each modify their own probe signals to include data indicating the quality of the communication between the given station and themselves, the given station being responsive to the data to vary at least one parameter of its transmissions so that it can communicate optimally with a desired number of other stations in the network without causing undue contention or interference between stations (page 38, column 1, paragraph 1).

6. Regarding claim 3, Dube et al. all the limitations as applied to claim 1. He further teaches means wherein the probe signals from the given station include data identifying other

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stations which the given station has detected as being available as destination or intermediate stations (page 38, column 1, paragraph 1).

7. Regarding claim 4, Dube et al. teach all the limitations as applied to claim 3. They further teach means wherein the probe signals further include data indicating the quality of the communication between the given station and each other identified station (page 38, column 1, paragraphs 1-4).

8. Regarding claim 5, Dube et al. teach all the limitations as applied to claim 4. they further teach means wherein the probe signals are broadcast probe signals addressed to all or a plurality of the other stations (page 38, column 2, paragraph 4).

9. Regarding claim 6, Dube et al. teaches all the limitations as applied to claim 5. He further teaches means wherein the probe signals additionally include addressed probe signals, addressed to at least one other station with which the station transmitting the addressed probe signals wishes to communicate (page 38, column 1, paragraph 1-3, page 38, column 2, paragraph 4).

10. Regarding claim 8, Dube et al teach all the limitations as applied to claim 6. They further teach means wherein the addressed probe signals include age information corresponding to the age of the data indicating the quality of the communication between the given station and each other identified station, for use by the station receiving the addressed probe signals in selecting other stations with which to communicate (page 38, column 1, paragraph 1-3, page 38, column 2, paragraph 4).

11. Regarding claim 13, Dube et al. teach all the limitations as applied to claim 1. They further teach means wherein stations receiving probe signals from the given station respond by

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transmitting reply signals to the given station, the given station comparing the number of reply signals received from different stations with a predetermined value, and varying at least one parameter of its transmission if the number of reply signals does not correspond to the second value until the number of reply signals received by the given station corresponds to the predetermined value (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

12. Regarding claim 14, Dube et al. teach all the limitations as applied to claim 13. They further teach means for defining a plurality of calling channels, each calling channel having a higher data rate than a previous calling channel and selecting a different calling channel having a different data rate from the previous calling channel according to the second predetermined criteria if the number of reply signals does not correspond to the predetermined value (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

13. Regarding claim 15, Dube et al. teach all the limitations as applied to claim 14. They further teach means wherein the first predetermined criteria include the calling channel data rate/or the calling channel transmission power, the calling channel being selected according to the highest available channel data rate and/or the lowest available channel transmission power (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

14. Regarding claim 16, Dube et al. teach all the limitations as applied to claim 14. They further teach means wherein the second predetermined criteria include the calling channel data rate/or the calling channel transmission power, the different calling channel being selected according to the lowest available channel data rate and/or the highest available channel transmission power (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

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15. Regarding claim 17, Dube et al. teach all the limitations as applied to claim 13. They further teach means wherein the predetermined value, which is compared with the number of reply signals, is calculated to correspond to a desired number of neighbor stations available to a given station as intermediate or destination stations, to permit the given station to communicate optimally with a desired number of other stations in the network without causing undue contention or interference between stations (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

16. Regarding claim 22, Dube et al. teach all the limitations as applied to claim 1. They further teach means wherein probe signals are transmitted regularly by stations to establish contact with other stations, other stations receiving the probe signals responding to a random number of the probe signals, the random number being equal to or less than the number of probe signals transmitted (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

17. Regarding claim 23, Dube et al. teach all the limitations as applied to claim 22. They further teach means for controlling, at each station, the interval between the transmission of probe signals by a probe timer, the probe timer defining an interval between successive probe signals which is longer than the duration of a probe signal and transmitting response signals between the successive probe signals (page 38, column 1, paragraph 4).

18. Regarding claim 25, Dube et al. teach all the limitations as applied to claim 1. They further teach means wherein stations are designated as important and these stations transmit probe signals including data identifying them, other stations receiving these probe signals in turn modifying their own probe signals to include data identifying the important stations, so that even

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stations remote from the important stations obtain the data (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 7, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dube et al.

21. Regarding claim 7, although the system disclosed by Dube et al. (as applied to claim 6) shows substantial features of the claimed invention, it fails to disclose means wherein the addressed probe signals are transmitted more frequently than the broadcast probe signals.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al.

A person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by employing the more frequent use of addressed probes to broadcast probes. Broadcast probes permit the node to inspect the entire network at once and give a full picture. Addressed probes are more frequently needed because the node only needs to verify that a needed node is accessible. This benefits the system because the broadcast probes are more labor intensive on the network as a whole and take more time to provide the needed response.

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22. Regarding claim 24, although the system disclosed by Dube et al. (as applied to claim 23) shows substantial features of the claimed invention, it fails to disclose means for varying the interval between the transmission of successive probe signals at each station according to whether or not the station has data to transmit, the probe timer defining a first, relatively short interval between successive probe signals when the station has data to send, and a second, relatively long interval between successive probe signals when the station has no data to send.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al.

A person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by varying the probe interval depending on the needs of the source station. This benefits the system by giving the source station the most accurate picture of the network at times when data needs to be sent. At other, more dormant times, the station has a less current picture but is using less network and computing time probing the network.

23. Regarding claim 26, Dube et al. teaches all the limitations as applied to claim 25. He further teaches means wherein the designated important stations include gateway stations and, from time to time, originating or destination stations (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

Although the system disclosed by Dube et al. shows substantial features of the claimed invention, it fails to disclose means wherein the designated important station is a certificate authority.

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Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al.

A person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by designating a certificate authority as "important". A certificate authority is a node that must be used by every node on a network and its location should be known. This benefits the system by ensuring that each node would note the location of this particular leaf node.

24. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dube et al. in view of Cain et al. (USPN 4,905,233).

25. Regarding claim 18, Dube et al. teaches all the limitations as applied to claim 1. He further teaches means for defining data channels, each station transmitting data to neighbor stations on selected data channels after determining the availability of the neighbor stations (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5)

Although the system disclosed by Dube et al. shows substantial features of the claimed invention, it fails to disclose means for establishing multiple data channels with varying data rates.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al., as evidenced by Cain et al. (USPN 4,905,233).

In an analogous art, Cain et al. (USPN 4,905,233) discloses a system for optimal data routing where multiple paths are selectable and have varying data rates (column 6, lines 58-63).

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Given the teaching of Cain et al. (USPN 4,905,233), a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by employing the use of multiple channels to a common destination with varying data rates. This benefits the system by allowing it to assign a level of priority to communications and accordingly choose the best path.

26. Regarding claim 19, Dube et al. teach all the limitations as applied to claim 18. they further teach means wherein the data channels correspond to respective calling channels, a data channel being selected for transmission of data which corresponds to the selected calling channel (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 4).

27. Regarding claim 20, Dube et al. teach all the limitations as applied to claim 18. They further teach means wherein a plurality of data channels correspond to a single calling channel, the data channels being monitored for activity by the stations and a station wishing to transmit data selecting a data channel which has been detected as free of activity, thereby to optimize data channel usage between stations (page 38, column 1, paragraph 1-2; page 41, column 1, paragraph 5).

28. Regarding claim 21, although the system disclosed by Dube et al. (as applied to claim 20) shows substantial features of the claimed invention, it fails to disclose means wherein probe signals transmitted by each station on the calling channels include information indicative of the intention of a given station transmitting the probe signals to move to a selected data channel which is then flagged as being active, to permit other stations to communicate successfully with the given station on the selected data channel.

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Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al..

A person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by employing the use of logic to note that a given data channel is in use by a particular machine. This benefits the system by allowing each station to have a record of available channels and the channels on which another station is communicating.

29. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dube et al. in view of Collins, III, et al. (USPN 5,845,090).

30. Regarding claim 27, although the system disclosed by Dube et al. (as applied to claim 1) shows substantial features of the claimed invention, it fails to disclose means for distributing updated software for the operation of the stations by uploading the updated software to a selected station, and distributing portions of the updated software to other station until each other station has the complete updated software.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al., as evidenced by Collins, III, et al. (USPN 5,845,090).

In an analogous art, Collins, III, et al. (USPN 5,845,090) discloses a system for the distribution of updated software for the operation of the stations by uploading the updated software to a selected station, and distributing portions of the updated software to other station until each other station has the complete updated software (column 2, lines 24-26, 34-36).

Given the teaching of Collins, III, et al. (USPN 5,845,090), a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al.

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by employing the update of software across the network. This benefits the system because after the network topology has been identified, it is determined where and how many software update packages are needed for the full network.

31. Regarding claim 28, although the system disclosed by Dube et al. (as applied to claim 27) shows substantial features of the claimed invention, it fails to disclose means wherein the software is distributed in update blocks including version data and block number data to permit stations to assemble the update software from a plurality of received update blocks.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al., as evidenced by Collins, III, et al. (USPN 5,845,090).

In an analogous art, Collins, III, et al. (USPN 5,845,090) discloses a system for the distribution of updated software wherein the software is distributed in update blocks including version data and block number data to permit stations to assemble the update software from a plurality of received update blocks (column 2, lines 24-42).

Given the teaching of Collins, III, et al. (USPN 5,845,090), a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by employing the use of multiple types of packages for the update of software. This benefits the system by allowing for each node to correctly install the software at the local station.

32. Regarding claim 29, although the system disclosed by Dube et al. (as applied to claim 28) shows substantial features of the claimed invention, it fails to disclose means wherein at least one of the update blocks includes timing data indicating a date and time at which the updated software must be used.

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Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Dube et al., as evidenced by Collins, III, et al. (USPN 5,845,090).

In an analogous art, Collins, III, et al. (USPN 5,845,090) discloses a system for the distribution of updated software wherein at least one of the update blocks includes timing data indicating a date and time at which the updated software must be used (column 2, lines 24-42). Note that the distribution block would have this information.

Given the teaching of Collins, III, et al. (USPN 5,845,090), a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Dube et al. by employing the use of a specific time for software update. This benefits the system by allowing each node to be updated at the same time even if distribution is time intensive.

Allowable Subject Matter

33. Claims 9-12 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Parton whose telephone number is (703)306-0543. The examiner can normally be reached on M-F 8:00AM - 4:30PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (703)305-4792. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Parton
Examiner
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